

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

In the Matter of the Application of) CASE NO. PAC-E-01-16
PacifiCorp, dba Utah Power & Light)
Company for Approval of Interim) ORDER NO. 29118
Provisions for the Supply of Electric)
Service to Monsanto Company)

_____)

TESTIMONY OF MARK KLEIN

1 **Q. Please state your name, business address and position with PacifiCorp (the**
2 **Company).**

3 A. My name is Mark Klein. My business address is 825 N. E. Multnomah, Suite 600,
4 Portland, Oregon. I am the Director of Structuring, for the Commercial & Trading
5 organization of PacifiCorp.

6 **Q. What are your qualifications?**

7 A. I joined the Company in 1995 and I have held positions in trading and structuring
8 prior to my current position. In my position as Director of Structuring, I am
9 responsible for valuation of the Company's structured wholesale contracts. The
10 term "structured" refers to wholesale contracts that are bilaterally negotiated
11 having non-standard terms and conditions as opposed to standard products that are
12 readily tradable in the broker markets. I graduated from the University of Idaho in
13 1981 with a Bachelor of Science in Mechanical Engineering and from Washington
14 State University in 1985 with a Master of Science in Mechanical Engineering.

15 **Q. What is the purpose of your testimony?**

16 A. I will provide testimony to explain and clarify the costs, appropriate terms, and
17 valuation methodologies for acquiring interruptibility or curtailment of load as a
18 power supply resource. I will specifically respond to questions posed in
19 Attachment A of the Idaho Public Utilities Commission Order No. 29118, dated
20 September 18, 2002.

21 **Q. What is "Black-Scholes"?**

22 A. Black-Scholes is a pricing model that explicitly estimates the value of an option
23 such as an equity option or a commodity option. Fischer Black, Myron Scholes,

1 and Robert Merton developed the “Black-Scholes” model in 1973. Myron
2 Scholes and Robert Merton were awarded the Nobel Prize for economics in 1997
3 in recognition of their work on this model. The value of an option in the “Black-
4 Scholes” model for a non-dividend-paying commodity is determined by: the
5 underlying price of the commodity, the option strike price, the expiration date of
6 the option, option exercise or settlement structure, the volatility of the price of the
7 underlying commodity, and the risk-free rate of interest.

8 **Q. How can it be verified?**

9 A. The model is a deterministic (non-random) estimate of the specified option’s
10 value. Given the same input variables, the model will produce the same result if
11 run independently by different sources.

12 **Q. When pricing the 500-hour interruption credit/payment, on what date was**
13 **the Capacity Charge established?**

14 A. The Capacity Charge was calculated on August 22, 2002 (See Exhibit No. 30).

15 **Q. When pricing the 500-hour interruption credit/payment, on what date was**
16 **the market price for Palo Verde established?**

17 A. The market price for electricity at Palo Verde was based on PacifiCorp’s forward
18 price curve of August 22, 2002 (See Exhibit No. 31). PacifiCorp’s forward price
19 curve is an estimate of the price that market participants are willing to buy or sell
20 a commodity (such as electricity at Palo Verde) for certain forward delivery
21 periods.

22 **Q. When pricing the 500-hour interruption credit/payment, on what date was**
23 **the market price for super peak established?**

1 A. The market price for super peak was based on PacifiCorp's forward price curve of
2 August 22, 2002 (See Exhibit No. 31).

3 **Q. When pricing the 1000-hour interruption credit/payment, on what date was**
4 **the Capacity Charge established?**

5 A. The Capacity Charge was calculated on September 3, 2002 (See Exhibit No. 32).

6 **Q. When pricing the 1000-hour interruption credit/payment, on what date was**
7 **the market price for Palo Verde established?**

8 A. The market price for Palo Verde was based on PacifiCorp's forward price curve of
9 September 3, 2002 (See Exhibit No. 33).

10 **Q. When pricing the 500-hour interruption credit/payment, on what date was**
11 **the market price for super peak established?**

12 The market price for super peak was based on PacifiCorp's forward price curve of
13 September 3, 2002 (See Exhibit No. 33).

14 **Q. Did the pricing valuations use daily products, weekly, monthly, a longer term**
15 **or some combination thereof?**

16 A. The valuation of the System Integrity Option is an estimate of annual value to
17 PacifiCorp based on PacifiCorp's ability to physically interrupt the entire
18 Monsanto plant load on a first call basis with less than two (2) hour notice (except
19 under emergency conditions) for system contingency or emergency purposes one
20 hour per month. PacifiCorp has never needed to interrupt Monsanto this often for
21 system contingency or emergency purposes. PacifiCorp further assumes that the
22 system contingency or emergency occurs at the same hour that all wholesale
23 power prices in the Western Electricity Coordinating Council (WECC) reach the

1 now-in-effect FERC power price cap of \$250/MWh. This assumption gives
2 Monsanto the highest value for this Option. The valuation of the Operating
3 Reserve Option is an estimate based on PacifiCorp's ability to physically interrupt
4 95 MW of Monsanto plant load with less than ten-minute notice for system
5 contingency purposes. As Mr. Watters has testified, the terms of the Operating
6 Reserves Option must meet the WECC Minimum Operating Reliability Criteria
7 for system operating reserves. PacifiCorp has assumed it may need as many as 24
8 non-continuous 60-minute physical interruptions per month to safely meet its
9 Operating Reserve requirements. PacifiCorp customers receive a direct benefit
10 from this product because it allows PacifiCorp to more fully utilize its generation
11 to meet load obligations and lower system costs. The valuation is based on month
12 forward on-peak prices at Palo Verde adjusted for appropriate location basis for
13 power and natural gas. Location basis adjustments are required because
14 PacifiCorp's customers are not located at Palo Verde.

15 The Economic Curtailment Option can be exercised by PacifiCorp with two-hour
16 notice based on market economics. The option as currently structured is not
17 available in the wholesale market. The valuation is derived using daily and
18 monthly forward prices for physical power and premiums on physical power
19 options. The valuation is modified to account for Monsanto's desire for the right
20 to buy-through and pay a proxy market price when PacifiCorp's exercises the
21 option. PacifiCorp's customers receive a direct benefit as this option reduces net
22 power costs. Since no physical interruption is involved, the buy-through
23 provision still requires PacifiCorp to carry the same amount of physical generation

1 to meet its load obligation and does not lower future capital costs for new
2 generation resources.

3 **Q. Was the same method used to price both the 500-hour interruptible option**
4 **and the 1000-hour interruptible option?**

5 A. Yes. The same methodology was used to price both the 500-hour and 1000-hour
6 interruptible options; however, variables that affect the value were different. The
7 options were valued on different dates (August 22, 2002 and September 3, 2002,
8 respectively), used different curtailment volumes (46 MW and 67 MW,
9 respectively), and used different strike prices (\$31.40 and \$16.31, respectively).
10 Mr. Watters explained that the lower \$16.31 strike price was used in the
11 September 3, 2002 valuation in response to Monsanto's observation that the
12 energy-only price in the firm rate should be used because the demand price is not
13 avoidable. This reflects the fact that PacifiCorp will exercise the Economic
14 Curtailment Option whenever the market value of the energy is greater than the
15 energy rate payable by Monsanto. It is important that the Commission
16 understands that their decision on the structure of the prices in the Electric Service
17 Agreement (ESA) will determine the appropriate strike price to use when
18 evaluating the Economic Curtailment Option. If the Commission determines that
19 the Monsanto proposal for an all-in energy price is to be used in the ESA then the
20 value of the option needs to be determined based on a strike price of \$31.40. If
21 the Commission determines that the PacifiCorp proposal for a split capacity and
22 energy price is to be used in the ESA then the value of the option needs to be

1 determined based on the energy component strike price of \$16.31. The exhibits
2 contain calculations using both scenarios.

3 **Q. What would the credit/payment for 1000-hours of interruptibility be if**
4 **calculated on the same date as the original credit/payment evaluation for**
5 **500-hours of interruptibility?**

6 A. Exhibit No. 34 shows this calculation for 1000 hours of economic interruptibility
7 based on strike prices of \$31.40 and \$16.31 for forward curves used on August
8 22, 2002 applied to curtailment rates of 46 MW and 67 MW. This exhibit
9 indicates that more interruptibility with a buy-through provision does not
10 necessarily lead to a lower all-in cost for Monsanto.

11
12 **Q. What would the credit/payment for 500-hours of interruptibility be if**
13 **calculated on the same date as the latest credit/payment evaluation for 1000-**
14 **hours of interruptibility? Please provide a diagram showing the week days**
15 **and times that the interruption is priced.**

16 A. Exhibit No. 35 shows the calculation for 500 hours of economic interruptibility
17 based on the same strike prices and curtailment rates used in Exhibit No. 34 for
18 forward curves used September 3, 2002.

19 **Q. Would the credit/payment for the additional 500-hours of interruptibility be**
20 **greater if these hours were not continuous to the first 500 hours? For**
21 **example, would the credit/payment be greater if the additional hours were**
22 **valued during the winter peak rather than the shoulder periods.**

1 A. The additional hours were valued based solely on market price relative to the
2 contract strike price, not on a seasonal basis, to maximize the value of
3 PacifiCorp's economic curtailment rights. PacifiCorp has evaluated both the 500-
4 hour economic curtailment option and the 1000-hour economic option over the
5 entire annual forward price curve on a month-to-month basis. To the extent that
6 forward prices of power and associated price volatility at Palo Verde during the
7 winter months are higher than forward prices of power and price volatility during
8 the shoulder months, then PacifiCorp would derive value in exercising the option
9 during the winter months. As Exhibits 31 and 33 indicate, forward prices for
10 power at Palo Verde during the shoulder months of April, May, June and October
11 are generally higher than winter forward prices.

12 **Q. Please provide the value for the 500-hour interruption credit/payment and**
13 **the 1000-hour interruption credit/payment on September 19, 2002 and**
14 **September 26, 2002. Provide this same information for the same day each**
15 **month for the past twelve months. Please provide all documentation.**

16 A. Exhibit No. 36 provides these values and all documentation.

17 **Q. Has PacifiCorp determined that the product(s) used to value the 500-hour**
18 **interruption credit/payment is (are) available for purchase? If so, please**
19 **provide a list of counterparties willing to provide the product(s).**

20 A. The Economic Curtailment Option as currently structured is not available in the
21 over-the-counter broker market. The product would require bilateral negotiations
22 and structured pricing. PacifiCorp currently does not have a list of counterparties
23 willing to sell this product.

1 Q. **Has PacifiCorp determined that the product(s) used to value the 1000-hour**
2 **interruption credit/payment is (are) available for purchase? If so, please**
3 **provide a list of counterparties willing to provide the product(s).**

4 A. The Economic Curtailment Option as currently structured is not available in the
5 over-the-counter broker market. The product would require bilateral negotiations
6 and structured pricing. PacifiCorp currently does not have a list of counterparties
7 willing to sell this product.

8 Q. **Provide the calculation of system integrity benefits using a FERC price cap**
9 **of \$1000/MWh.**

10 A. The current FERC wholesale price cap in the WECC is \$250/MWh and will be in
11 effect for the foreseeable future. FERC has suggested raising the price cap to
12 \$1000/MWh under the proposed Standard Market Design (SMD). Should the
13 price cap be raised over \$250/MWh, PacifiCorp would seek more economic
14 alternatives reflecting the lower probability of the price reaching \$1000/MWh
15 than the price reaching \$250/MWh to cover system integrity needs. The cost of
16 these alternatives is not known. In response to the Commission's question,
17 however, the system integrity benefits calculation based on the \$1000/MWh price
18 is contained in Exhibit No. 37.

19 Q. **Are there any differences in method or assumptions, other than price, for the**
20 **calculation in Exhibit 27 for \$250/MWh?**

21 A. The only variables required in calculating the System Integrity Benefit are the
22 FERC price cap of \$250/MWh and the number of hours that have been assumed

1 for each month. As previously stated, PacifiCorp has already used assumptions
2 beneficial to Monsanto to determine the value of the System Integrity Benefit.

3 **Q. Provide a schedule or diagram showing the hours during the year that**
4 **represent the most expensive power costs. Show the month, weekday, hour**
5 **and approximate cost.**

6 A. See Exhibits 34 and 35.

7 **Q. Are the hours shown in response to previous question the hours that would**
8 **provide the most value for interruption?**

9 A. Yes.

10 **Q. Based on your responses to the Commission's questions and the exhibits**
11 **accompanying this testimony, do you have any corrections to the exhibits you**
12 **presented at the hearing?**

13 A. Yes. In preparing the exhibits for this testimony, I noticed that I had an error in my
14 calculations in Exhibit 27, which was introduced at the hearing. Exhibit 27
15 incorrectly used a strike price for the Economic Curtailment Option of \$31.40
16 instead of \$16.31. This higher strike price resulted in a credit for Economic
17 Curtailment of \$2,927,230. In my Exhibit 32, I calculate this credit using the
18 correct strike price of \$16.31. This correction produces a credit for Economic
19 Curtailment of \$4,643,950.

20 **Q. Does this conclude your supplemental testimony?**

21 A. Yes it does.

Case No. PAC-E-01-16
Exhibit No. 30
Witness: Mark Klein

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

PACIFICORP

Exhibit Accompanying Rebuttal Testimony of Mark Klein

September 27, 2002

Monsanto View		Total 2003	\$/MWh	Total 2004	\$/MWh	Total 2005	\$/MWh	Total 2006	\$/MWh	Total 2003-06	\$/MWh
Annual Capacity Pmt	\$ -	\$ (42,156,492)	\$ -	\$ -	\$ -	\$ (42,156,492)	\$ -	\$ -	\$ -	\$ -	\$ -
Tariff Energy Pmt	\$ (42,156,492)	\$ (31.40)	\$ (31.40)	\$ (42,156,492)	\$ (31.40)	\$ (42,156,492)	\$ (31.40)	\$ (42,156,492)	\$ (31.40)	\$ (168,625,966)	\$ (31.40)
Credits:											
Sys. Int. Ben.	\$ 486,000	\$ 0.36	\$ 0.36	\$ 486,000	\$ 0.36	\$ 486,000	\$ 0.36	\$ 486,000	\$ 0.36	\$ 1,944,000	\$ 0.36
Operating Reserves	\$ 3,112,200	\$ 2.32	\$ 2.32	\$ 3,112,200	\$ 2.32	\$ 3,112,200	\$ 2.32	\$ 3,112,200	\$ 2.32	\$ 12,448,800	\$ 2.32
Econ. Curtail.	\$ 2,340,000	\$ 1.74	\$ 1.74	\$ 2,340,000	\$ 1.74	\$ 2,340,000	\$ 1.74	\$ 2,340,000	\$ 1.74	\$ 9,360,000	\$ 1.74
Net Cost	\$ (36,218,292)	\$ (26.98)	\$ (26.98)	\$ (36,218,292)	\$ (26.98)	\$ (36,218,292)	\$ (26.98)	\$ (36,218,292)	\$ (26.98)	\$ (144,873,166)	\$ (26.98)
Annual Use (MWh): 1,342,563											
Curve Date 8/22/02											
Strike Price: \$ 31.40											
Operating Reserves (95 MW Minimum up to 2 furnaces)											
Six minute notice											
One hour continuous											
24 hrs per month/288 hrs per year											
Economic Curtailment (46 MW Minimum)											
120 minute notice											
One furnace = 4 hours continuous (min)											
One furnace = 8 hours continuous (max)											
500 hours per year											
System Integrity Benefit											
120 minute notice except under emergency conditions											
One hour per month											
162 MW											

Case No. PAC-E-01-16
Exhibit No. 31
Witness: Mark Klein

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

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Exhibit Accompanying Rebuttal Testimony of Mark Klein

September 27, 2002

Exhibit No 31

Curve Date 08/22/02	Palo Verde On-Peak Mid Px	Palo Verde Off-Peak Mid Px	Mona Basis On-Peak Mid Px	Mona On-Peak Mid Px	Mona Super Peak Scalar	Mona Super Peak Mid Px
Contract						
Jan-03	\$35.000	\$19.500	-\$1.500	\$33.500	114%	\$38.190
Feb-03	\$34.000	\$20.000	-\$1.500	\$32.500	114%	\$37.050
Mar-03	\$34.000	\$20.000	-\$1.500	\$32.500	114%	\$37.050
Apr-03	\$35.750	\$20.000	-\$0.750	\$35.000	110%	\$38.500
May-03	\$36.000	\$19.750	-\$0.500	\$35.500	122%	\$43.310
Jun-03	\$37.250	\$21.000	\$0.000	\$37.250	126%	\$46.935
Jul-03	\$47.000	\$23.250	\$5.000	\$52.000	130%	\$67.600
Aug-03	\$48.705	\$25.988	\$5.000	\$53.705	130%	\$69.817
Sep-03	\$46.423	\$26.500	\$5.000	\$51.423	119%	\$61.193
Oct-03	\$42.001	\$22.000	-\$1.500	\$40.501	113%	\$45.767
Nov-03	\$33.052	\$22.000	-\$1.500	\$31.552	111%	\$35.022
Dec-03	\$32.947	\$22.000	-\$1.500	\$31.447	116%	\$36.478
Jan-04	\$36.565	\$20.500	-\$1.500	\$35.065	114%	\$39.974
Feb-04	\$35.500	\$20.500	-\$1.500	\$34.000	114%	\$38.760
Mar-04	\$34.435	\$20.500	-\$1.500	\$32.935	114%	\$37.546
Apr-04	\$34.766	\$21.000	-\$0.750	\$34.016	110%	\$37.418
May-04	\$35.600	\$21.000	-\$0.500	\$35.100	122%	\$42.823
Jun-04	\$40.633	\$21.000	\$0.000	\$40.633	126%	\$51.198
Jul-04	\$49.678	\$27.250	\$6.000	\$55.678	130%	\$72.381
Aug-04	\$49.678	\$27.250	\$6.000	\$55.678	130%	\$72.381
Sep-04	\$49.678	\$27.250	\$6.000	\$55.678	119%	\$66.256
Oct-04	\$37.276	\$22.000	-\$1.500	\$35.776	113%	\$40.427
Nov-04	\$37.276	\$22.000	-\$1.500	\$35.776	111%	\$39.712
Dec-04	\$37.276	\$22.000	-\$1.500	\$35.776	116%	\$41.501
Jan-05	\$33.545	\$18.659	-\$1.500	\$32.045	114%	\$36.531
Feb-05	\$33.545	\$18.659	-\$1.500	\$32.045	114%	\$36.531
Mar-05	\$33.545	\$18.659	-\$1.500	\$32.045	114%	\$36.531
Apr-05	\$36.875	\$19.438	-\$0.750	\$36.125	110%	\$39.738
May-05	\$36.875	\$19.438	-\$0.500	\$36.375	122%	\$44.378
Jun-05	\$36.875	\$19.438	-\$0.500	\$36.375	126%	\$45.833
Jul-05	\$53.718	\$27.415	\$6.000	\$59.718	130%	\$77.633
Aug-05	\$53.718	\$27.415	\$6.000	\$59.718	130%	\$77.633
Sep-05	\$53.718	\$27.415	\$6.000	\$59.718	119%	\$71.064
Oct-05	\$40.193	\$22.133	-\$1.500	\$38.693	113%	\$43.723
Nov-05	\$40.193	\$22.133	-\$1.500	\$38.693	111%	\$42.949
Dec-05	\$40.193	\$22.133	-\$1.500	\$38.693	116%	\$44.883
Jan-06	\$31.765	\$19.586	-\$1.500	\$30.265	114%	\$34.502
Feb-06	\$31.765	\$19.586	-\$1.500	\$30.265	114%	\$34.502
Mar-06	\$31.765	\$19.586	-\$1.500	\$30.265	114%	\$34.502
Apr-06	\$36.201	\$20.404	-\$0.750	\$35.451	110%	\$38.996
May-06	\$36.201	\$20.404	-\$0.500	\$35.701	122%	\$43.556
Jun-06	\$36.201	\$20.404	-\$0.500	\$35.701	126%	\$44.984
Jul-06	\$54.017	\$28.777	\$6.000	\$60.017	130%	\$78.022
Aug-06	\$54.017	\$28.777	\$6.000	\$60.017	130%	\$78.022
Sep-06	\$54.017	\$28.777	\$6.000	\$60.017	119%	\$71.420
Oct-06	\$40.417	\$23.233	-\$1.500	\$38.917	113%	\$43.976
Nov-06	\$40.417	\$23.233	-\$1.500	\$38.917	111%	\$43.197
Dec-06	\$40.417	\$23.233	-\$1.500	\$38.917	116%	\$45.143

Case No. PAC-E-01-16
Exhibit No. 32
Witness: Mark Klein

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

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Exhibit Accompanying Rebuttal Testimony of Mark Klein

September 27, 2002

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Case No. PAC-E-01-16
Exhibit No. 33
Witness: Mark Klein

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

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Exhibit Accompanying Rebuttal Testimony of Mark Klein

September 27, 2002

Exhibit No 33

Curve Date 09/03/02	Palo Verde On-Peak	Palo Verde Off-Peak	Mona Basis On-Peak	Mona On-Peak	Mona Super Peak	Mona Super Peak
Contract	Mid Px	Mid Px	Mid Px	Mid Px	Scalar	Mid Px
Jan-03	\$36.500	\$20.250	-\$1.500	\$35.000	114%	\$39.900
Feb-03	\$36.000	\$21.000	-\$1.500	\$34.500	114%	\$39.330
Mar-03	\$35.500	\$21.000	-\$1.500	\$34.000	114%	\$38.760
Apr-03	\$37.500	\$20.000	-\$0.750	\$36.750	110%	\$40.425
May-03	\$37.000	\$19.750	-\$0.500	\$36.500	122%	\$44.530
Jun-03	\$38.000	\$21.000	\$0.000	\$38.000	126%	\$47.880
Jul-03	\$49.500	\$24.000	\$5.000	\$54.500	130%	\$70.850
Aug-03	\$55.000	\$30.000	\$5.000	\$60.000	130%	\$78.000
Sep-03	\$48.705	\$25.988	\$5.000	\$53.705	119%	\$63.909
Oct-03	\$42.876	\$23.500	-\$1.500	\$41.376	113%	\$46.755
Nov-03	\$33.740	\$23.500	-\$1.500	\$32.240	111%	\$35.787
Dec-03	\$33.633	\$23.500	-\$1.500	\$32.133	116%	\$37.275
Jan-04	\$38.625	\$21.000	-\$1.500	\$37.125	114%	\$42.323
Feb-04	\$37.500	\$21.000	-\$1.500	\$36.000	114%	\$41.040
Mar-04	\$36.375	\$21.000	-\$1.500	\$34.875	114%	\$39.757
Apr-04	\$36.646	\$20.750	-\$0.750	\$35.896	110%	\$39.485
May-04	\$37.525	\$20.750	-\$0.500	\$37.025	122%	\$45.170
Jun-04	\$42.830	\$20.750	\$0.000	\$42.830	126%	\$53.965
Jul-04	\$52.681	\$28.750	\$6.000	\$58.681	130%	\$76.286
Aug-04	\$52.681	\$28.750	\$6.000	\$58.681	130%	\$76.286
Sep-04	\$52.681	\$28.750	\$6.000	\$58.681	119%	\$69.831
Oct-04	\$38.776	\$23.750	-\$1.500	\$37.276	113%	\$42.122
Nov-04	\$38.776	\$23.750	-\$1.500	\$37.276	111%	\$41.377
Dec-04	\$38.776	\$23.750	-\$1.500	\$37.276	116%	\$43.241
Jan-05	\$35.675	\$18.939	-\$1.500	\$34.175	114%	\$38.959
Feb-05	\$35.675	\$18.939	-\$1.500	\$34.175	114%	\$38.959
Mar-05	\$35.675	\$18.939	-\$1.500	\$34.175	114%	\$38.959
Apr-05	\$39.003	\$18.714	-\$0.750	\$38.253	110%	\$42.079
May-05	\$39.003	\$18.714	-\$0.500	\$38.503	122%	\$46.974
Jun-05	\$39.003	\$18.714	-\$0.500	\$38.503	126%	\$48.514
Jul-05	\$56.711	\$29.208	\$6.000	\$62.711	130%	\$81.524
Aug-05	\$56.711	\$29.208	\$6.000	\$62.711	130%	\$81.524
Sep-05	\$56.711	\$29.208	\$6.000	\$62.711	119%	\$74.626
Oct-05	\$42.433	\$24.128	-\$1.500	\$40.933	113%	\$46.254
Nov-05	\$42.433	\$24.128	-\$1.500	\$40.933	111%	\$45.435
Dec-05	\$42.433	\$24.128	-\$1.500	\$40.933	116%	\$47.482
Jan-06	\$33.643	\$20.190	-\$1.500	\$32.143	114%	\$36.643
Feb-06	\$33.643	\$20.190	-\$1.500	\$32.143	114%	\$36.643
Mar-06	\$33.643	\$20.190	-\$1.500	\$32.143	114%	\$36.643
Apr-06	\$38.341	\$19.950	-\$0.750	\$37.591	110%	\$41.350
May-06	\$38.341	\$19.950	-\$0.500	\$37.841	122%	\$46.166
Jun-06	\$38.341	\$19.950	-\$0.500	\$37.841	126%	\$47.680
Jul-06	\$57.210	\$31.137	\$6.000	\$63.210	130%	\$82.173
Aug-06	\$57.210	\$31.137	\$6.000	\$63.210	130%	\$82.173
Sep-06	\$57.210	\$31.137	\$6.000	\$63.210	119%	\$75.220
Oct-06	\$42.806	\$25.722	-\$1.500	\$41.306	113%	\$46.676
Nov-06	\$42.806	\$25.722	-\$1.500	\$41.306	111%	\$45.849
Dec-06	\$42.806	\$25.722	-\$1.500	\$41.306	116%	\$47.915

Case No. PAC-E-01-16
Exhibit No. 34
Witness: Mark Klein

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

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Exhibit Accompanying Rebuttal Testimony of Mark Klein

September 27, 2002

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Case No. PAC-E-01-16
Exhibit No. 35
Witness: Mark Klein

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

PACIFICORP

Exhibit Accompanying Rebuttal Testimony of Mark Klein

September 27, 2002

[illegible]

Monsanto View		Total 2003	\$/MWh	Total 2004	\$/MWh	Total 2005	\$/MWh	Total 2006	\$/MWh	Total 2003-06	\$/MWh
Annual Capacity Pmt	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tariff Energy Pmt	\$ (42,156,492)	\$ (31.40)	\$ (42,156,492)	\$ (31.40)	\$ (42,156,492)	\$ (31.40)	\$ (42,156,492)	\$ (31.40)	\$ (31.40)	\$ (168,625,966)	\$ (31.40)
Credits:											
Sys. Int. Ben.	\$ 486,000	\$ 0.36	\$ 486,000	\$ 0.36	\$ 486,000	\$ 0.36	\$ 486,000	\$ 0.36	\$ 0.36	\$ 1,944,000	\$ 0.36
Operating Reserves	\$ 3,922,193	\$ 2.92	\$ 3,922,193	\$ 2.92	\$ 3,922,193	\$ 2.92	\$ 3,922,193	\$ 2.92	\$ 2.92	\$ 15,688,772	\$ 2.92
Econ. Curtail.	\$ 1,875,000	\$ 1.40	\$ 1,875,000	\$ 1.40	\$ 1,875,000	\$ 1.40	\$ 1,875,000	\$ 1.40	\$ 1.40	\$ 7,500,000	\$ 1.40
Net Cost	\$ (35,873,299)	\$ (26.72)	\$ (35,873,299)	\$ (26.72)	\$ (35,873,299)	\$ (26.72)	\$ (35,873,299)	\$ (26.72)	\$ (26.72)	\$ (143,493,194)	\$ (26.72)
Annual Use (MWh): 1,342,563											
Curve Date		9/3/02									
Strike Price:		\$ 31.40									
Operating Reserves (95 MW Minimum up to 2 furnaces)											
Six minute notice											
One hour continuous											
24 hrs per month/288 hrs per year											
Economic Curtailment (46 MW Minimum)											
120 minute notice											
One furnace = 4 hours continuous (min)											
One furnace = 8 hours continuous (max)											
500 hours per year											
System Integrity Benefit											
120 minute notice except under emergency conditions											
One hour per month											
162 MW											

[illegible]

Monsanto View							
	Total 2003	\$/MWh	Total 2004	\$/MWh	Total 2005	\$/MWh	Total 2003-06
Annual Capacity Pmt	\$ (20,935,989)	\$ (15.59)	\$ (20,935,989)	\$ (15.59)	\$ (20,935,989)	\$ (15.59)	\$ (83,743,957)
Tariff Energy Pmt	\$ (21,897,209)	\$ (16.31)	\$ (21,897,209)	\$ (16.31)	\$ (21,897,209)	\$ (16.31)	\$ (87,588,838)
Credits:							
Sys. Int. Ben.	\$ 486,000	\$ 0.36	\$ 486,000	\$ 0.36	\$ 486,000	\$ 0.36	\$ -
Operating Reserves	\$ 3,922,193	\$ 2.92	\$ 3,922,193	\$ 2.92	\$ 3,922,193	\$ 2.92	\$ 15,688,772
Econ. Curtail.	\$ 3,312,000	\$ 2.47	\$ 3,312,000	\$ 2.47	\$ 3,312,000	\$ 2.47	\$ 13,248,000
Net Cost	\$ (35,113,006)	\$ (26.15)	\$ (35,113,006)	\$ (26.15)	\$ (35,113,006)	\$ (26.15)	\$ (140,452,023)
Annual Use (MWh):	1,342,563						
Curve Date	9/3/02						
Strike Price:	\$ 16.31						
Operating Reserves (95 MW Minimum up to 2 furnaces)							
Six minute notice							
One hour continuous							
24 hrs per month/288 hrs per year							
Economic Curtailment (46 MW Minimum)							
120 minute notice							
One furnace = 4 hours continuous (min)							
One furnace = 8 hours continuous (max)							
500 hours per year							
System Integrity Benefit							
120 minute notice except under emergency conditions							
One hour per month							
162 MW							

Case No. PAC-E-01-16
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September 27, 2002

Case No. PAC-E-01-16
Exhibit No. 37
Witness: Mark Klein

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

PACIFICORP

Exhibit Accompanying Rebuttal Testimony of Mark Klein

September 27, 2002

Exhibit No 37

Exhibit No 37

System Intergrity Benefit

Capacity	162 MW
Annual Cost	(\$1,944,000)
System Interruption/year	12 hour
FERC Cap	\$1,000 /MWh
Avoided Purchase Cost	<u>\$1,944,000</u>
Net Benefit	<u>\$0.00</u>